

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

1. AMENDMENTS TO THE SPECIFICATION

Please replace the first paragraph under the title "DETAILED DESCRIPTION OF THE INVENTION" on page 7 of the original specification with the following amended paragraph:

A preferred driving system shown in Figure 2 includes at least elements 1 thru 4. When said control input (for example the pilot/copilot flight control load input) is imparted on axially movable element 1 of said driving system, said two-arm bellcrank 2 and said output members - the rod links 3 and 4 - operate said pulleys 5 and 6 causing them to rotate about said axle 12. Joints 7 thru 11 are pivotal joints. Each pulley 5 and 6 being coaxial but independently rotatable about said axle 12 - by means of control cables 21, 21a, 22 and 22a ~~schematically shown in Figure 3~~ - operates one control surface, for example, the elevator left or right control surface as schematically shown in Figure 3, even though the invention is equally applicable to the operation of the aileron control surfaces as well. Furthermore, irrespective of the pilot control input and provided springs 13 and 13a are not utilized, so long as the aerodynamic forces acting on the left and right control surfaces during flight are equal, the left and right control systems, which are connected thru the bellcrank 2, remain balanced and the bellcrank 2 does not pivot around the axis 7. When not pivoting, the bellcrank 2 maintains an equal deflection of both surfaces as dictated by the pilot input. Since the aerodynamic forces acting on deflected surfaces are directly proportional to surface deflections, should the unbalance of these forces between two surfaces occur at any time and for any reason - for example due to a gust, maneuver, slip stream effect, etc. - the surface experiencing momentarily higher load would reduce its deflection thus forcing the bellcrank 2 to rotate around pivot 7 causing the other surface deflection to increase until the system is balanced again. This self-aligning action is occurring automatically without influencing the pilot input at all. By utilizing springs 13 and 13a that resist the pivoting action of bellcrank 2, the magnitude of unbalance may be moderated. Said spring preload adjustment mechanism is represented here by a screw mechanism 13b attached to element 1 that allows for a small preload adjustment of each spring. A larger spring preload adjustment mechanism is shown in Figures 5 and 5A.

Please replace the second paragraph on page 8 of the original specification with the following amended paragraph:

Since in the invention presented in Figures 1 and 2 the axial movement of element 1 produces rotation of pulleys 5 and 6 in opposite direction, some means may have to be implemented to assure that control surfaces are deflecting in the [[same]] intended direction. Various solutions may be possible, one of which is presented in Figure 3 for an elevator control system where one of the cables is cross- routed to achieve that. This is not necessary for the aileron control system shown in Figure 4 since left and right ailerons are moving in opposite direction by design.

Please replace the second paragraph on page 9 of the original specification with the following amended paragraph:

Figures 7 and 8 present an alternate design performing the same function as described in Figures 1 and 2 except that the driving system operating the pulleys is different. This design utilizes a differential gearing between the pulleys and the pilot controls. Said driving system presented here includes at least elements 32, 34, and 34a. ~~and~~ Said control input is provided by rod 35. Said support structure, in this case a shaft 32 – rotatable about said axle 33, supporting two output members: the satellite pinions 34 and 34a either freely rotating or restrained by springs 42 and 42a mounted on the shaft 32 - is driven by a rod 35 operated by the pilot controls either directly or by means of an actuator. Design further comprises two pulleys 36 and 37, essentially same as pulleys 5 and 6 in Figure 1, but having integrally built (or attached) segmented bevel gears 38, 38a, 39 and 39a, on one side of each pulley 36 and 37 that mesh with the satellite pinions 34 and 34a forming said differential gearing ~~assembly~~ assembly. Pulleys 36 and 37 are connected with cables 40, 40a, 41 and 41a to the left and right control surfaces in the same manner as described in Figure 1 for pulleys 5 and 6, with the exception that the crossover cable routing as shown in Figure 3 is not required here for elevator controls but would be required for the aileron controls.